

Front Turning

CSVF / CC.. / DC.. / VC.. / VB.. / TN.. / TF

Work Material		High Temperature Alloys		Titanium Alloys		Cobalt Chrome Alloys		Stainless Steels		Alloy Steels		Carbon Steels	
Common Name		Inconel Hastelloy MP35N		Ti-6Al-4V		ASTM F-75		304	316 17-4PH	303 430F	5120 4137		1045 1046
Grade	1st choice	DM4 / DT4						ST4 DM4	DM4 DT4	TM4	QM3		
	2nd choice	TM4 / QM3						QM3 / VM1		QM3	TM4 / DM4 / DT4		
Cutting Speed (SFM)		75	225	100	275	130	330	150	600	150	500		
	≤.004 DOC	AMX KHG .0004 .0012						AMX KHG .0004 .0016					
	.004 to .060 DOC	YL CL AM3 S .0008 .0024						YL CL AM3 AZ7 S U/U1 UL .0008 .0032					
	≥ .060 DOC	YL CL AM3 S .0008 .0025						YL CL AM3 ZP .0012 .0040					

Back Turning

CSVB

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DM4 / DT4					VM1	
	2nd choice	VM1					DM4 / DT4	
Cutting Speed (SFM)		75	225	100	275		100	300
Feed Rate (IPR)	X Direction				.0004	.0012		
	Z Direction				.0004	.0016		

TBDP / TBMH / TBP / TBPA / TBVC

Work Material		High Temperature Alloys		Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels	
Common Name		Inconel Hastelloy MP35N		Ti-6Al-4V	ASTM F-75	304	316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DM4 / DT4				ST4 DM4	DM4 DT4 QM3	TM4	QM3	
	2nd choice	TM4 / QM3				VM1		QM3	TM4 / DM4 / DT4	
Cutting Speed (SFM)		75	225	100 275				150	500	
Feed Rate (IPR)	X Direction			.0004	.0012			.0004	.0016	
	Z Direction			.0008	.0024			.0008	.0031	

TB32 / TB43

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	ZM3					ZM3	
	2nd choice							
Cutting Speed (SFM)		50			150	ZM3 Z15	150 400	425 800
Feed Rate (IPR)	X Direction				.0004	.0020	.0004	.0020
	Z Direction				.0016	.0031	.0016	.0059

Cut Off

CSV

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DM4 / DT4					VM1	
	2nd choice	VM1					DM4 / DT4	
Cutting Speed (SFM)		100		230			100	300
Feed Rate (IPR)		.0004		.0012			.0004	.0020

CTP / CTPA / CTPS / CTPW

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304	316 17-4PH 303 430F	5120 4137	1045 1046
Grade	1st choice	DM4 / DT4			ST4 DM4	DM4 DT4	TM4	QM3
	2nd choice	TM4			QM3 / VM1		QM3	TM4 / DM4 / DT4
Cutting Speed (SFM)		100		230			100	300
Feed Rate (IPR)		.0008		.0020			.0008	.0024

CTDP / CTWP / CTV

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304	316 17-4PH 303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			ST4 DM4	DM4 DT4	TM4	QM3
	2nd choice	TM4 / QM3					QM3	TM4 / DM4
Cutting Speed (SFM)		100		230			100	300
Feed Rate (IPR)		.0012		.0031			.0016	.0047

Grooving

CSV / GTG / GTMH / GTMT / GTMX / SBG

Work Material		High Temperature Alloys		Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels		
Common Name		Inconel Hastelloy MP35N		Ti-6Al-4V	ASTM F-75	304	316 17-4PH	303 430F	5120 4137	1045 1046	
Grade	1st choice	DM4 / DT4				ST4 DM4	DM4 DT4	TM4	QM3		
	2nd choice	TM4 / QM3				QM3 / VM1		QM3	TM4 / DM4 / DT4		
Cutting Speed (SFM)		75	225	100	275	130	330	150	600	150	500
Feed Rate (IPR) A. Grooving B. Side turning*	Width .010-.020	A. .0002 - .0012									
		B. .0001 - .0002									
	.020-.040	A. .0008 - .0024								A. .0008 - .0028	
		B. .0002 - .0004								B. .0002 - .0004	
	.040-.080	A. .0012 - .0028								A. .0012 - .0031	
		B. .0008 - .0020								B. .0012 - .0024	
> .080	A. .0012 - .0079										
	B. .0012 - .0024										

*When side turning, Max. DOC is under .0079". Under .016" width side turning impossible

GVW / Groove Duo

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels			
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046			
Grade	1st choice	QM3									
	2nd choice										
Cutting Speed (SFM)		75	225	100	275	130	330	150	600	150	500
Feed Rate (IPR) A. Grooving B. Side turning*	Width .118-.157	A. .0020 - .0059									
	.157-.197	A. .0039 - .0079						A. .0039 - .0098			
	> .197	A. .0059 - .0138									

*Max DOC is 80% of width

GTPA

Work Material		Aluminum Alloy	
Common Name		ASTM 5056 ASTM 6061	
Grade	1st choice	PD1	
	2nd choice	KM1	
Cutting Speed (SFM)		PD1 330	1000
		KM1 160	650
Feed Rate (IPR) A. Grooving B. Side turning		A. .0020 - .0079 B. .0039 - .0079	

Threading

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	VM1			VM1 / ZM3		QM3	
	2nd choice	ZM3			QM3		VM1 / ZM3	
Cutting Speed (SFM)		75 125 225	100	275	130 330 150	600	150	500

*Unless your machine is equipped with high speed threading program, please set the feed rate to 80 IPM or lower to prevent making incomplete threads

ID Boring

diameter ≤ .240" (LBM / STICK DUO)

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DM4 / DT4					VM1 / TM4	
	2nd choice	VM1 / ZM3					ZM3	
Cutting Speed (SFM)		60		230			100	300
Feed Rate (IPR)				.0004	.0020			
Depth Of Cut (DOC)				.0020	.0039			

diameter > .240"

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels			Alloy Steels	Carbon Steels
					Hard to cut		Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304	316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DM4 / DT4			ST4 DM4	DM4 DT4	TM4	QM3	
	2nd choice	TM4			QM3 / TM4		QM3	TM4 / DT4	
Cutting Speed (SFM)		150	330		130	330	150 600	150	500
Feed Rate (IPR)					.0008		.0047		
Depth Of Cut (DOC)					.0039		.0787		